Steam Trap Monitoring Program Cedar Bayou Plant

Miguel Chen

Texas Technology Showcase

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Chevron Phillips Chemical Company LP

- Steam is one of the primary forms of energy used in the chemical industry.
- Improvements in the steam system offer plants the potential for significant cost savings.
- Recognizing the opportunity the Cedar Bayou Plant started to look for ways to reduce waste in our steam system.

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Size of the Opportunity

- Cedar Bayou Plant consumes approximately 1.5 million pounds of steam per hour at various pressure levels from 1600 to 50 psig.
- Nearly 7,000 steam traps.
- A 1991 survey indicated that 25% of the traps needed repairs.

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Trap Management Program Objectives

- Create an ongoing steam trap monitoring and repair program.
- Conduct a steam trap survey every six months.
- Store trap performance data and repair history in a data base.
- Have reporting and trending capability to provide savings and repair history.

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The system that promised to meet these objectives was the TLV® TrapManager™ & TrapMan®

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Benefits of the Program

- Field device removes judgement from the technician and consistent results are obtained with little experience or training.
- Field data is uploaded to a PC for leak quantification, further analysis and reporting.
- Corrective action taken based on reports provided.

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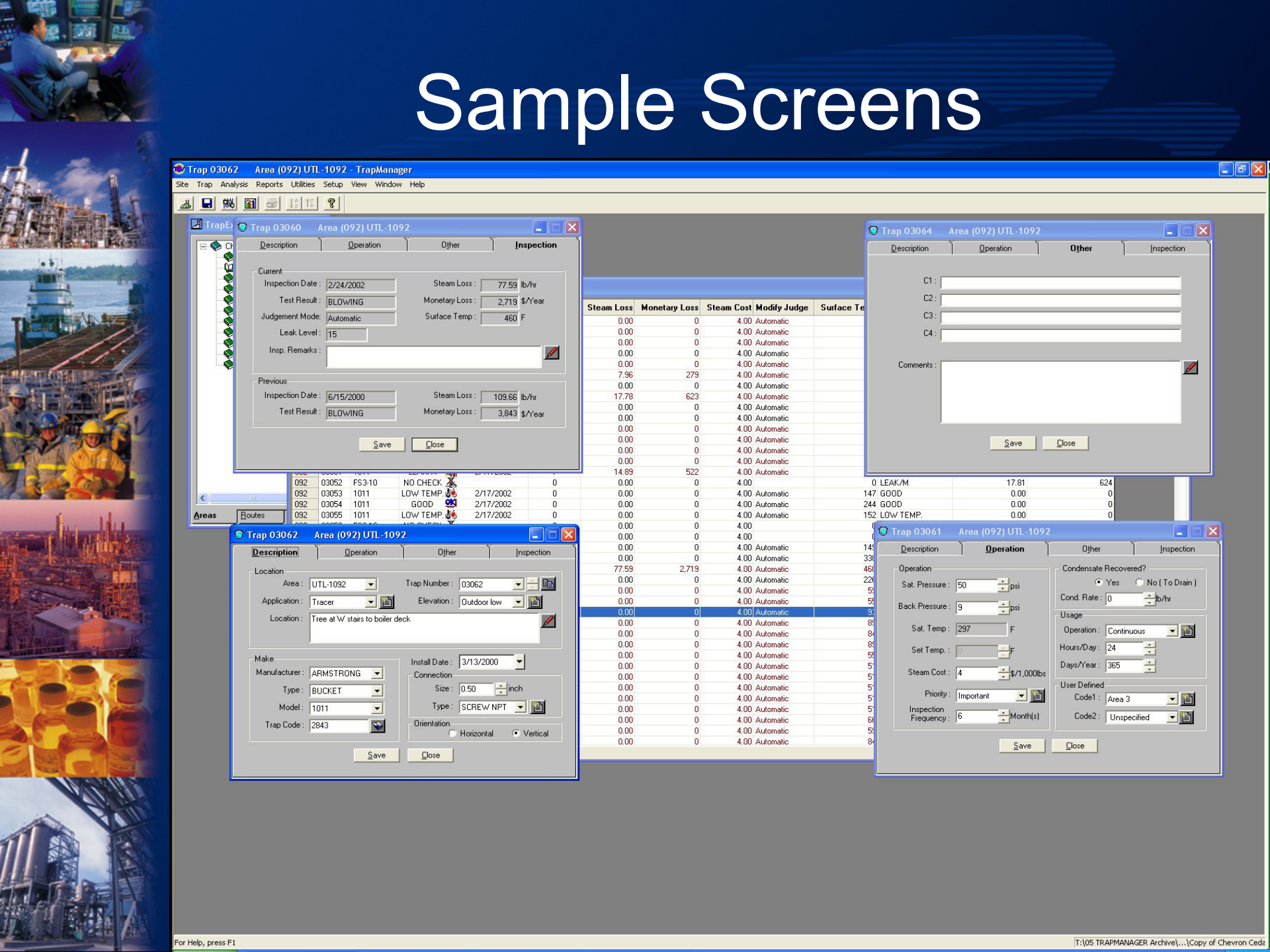
Sample Screens



Sample Report

Master Log Report

1 of 115 | 100% | Total:1263 | 100% | 1263 of 1263

Chevron Phillips Chemical Co.
Cedar Bayou Baytown Texas
9500 IH-10 East exit 796
Baytown, TX 77521

Master Log Report

Printed Date:
Page :

Group By: Area No: UTL-1092

Trap Count: **1,263** Current Annual Monetary Loss: **68,806** Current Annual Steam Loss: **17,201**

Area-TrapID create date	Model Name Trap Type Manufacturer	Application Priority Operation	Elevation Orientation	Connctn Type Size	Condensate Rate Recovered?	Installed Months Use Insp. Freq.	Pressure B. Press. Set Temp	Hr/Day Day/Yr Stm Cost	Pressure Range User Code1 User Code2	Trap Location (Area Name)-Alias Name	Test Results Inspect Date Judgement
092-01001 03/01/2000	1811-400 BUCKET ARMSTRONG	Unspecified Important Continuous	Outdoor low horizontal	SCREW NPT 0.75	0 No (To drain)	03/01/2000 24-36 6	400 0 0	24 365 4.00	300-600 Area 1 Unspecified	Beam S of GA-861C (092)UTL-1092	GOOD 07/14/2002 Automatic
092-01002 03/01/2000	721 DISC YARWAY	Unspecified Important Continuous	Outdoor low horizontal	SCREW NPT 0.75	0 No (To drain)	03/01/2000 24-36 6	110 0 0	24 365 4.00	50-150 Area 1 Unspecified	S side GA-807 (092)UTL-1092	BLOCKED 07/14/2002 Automatic
092-01003 03/14/2002	FS3-10 FLOAT TLV	Unspecified Important Continuous	Outdoor low horizontal	WELD SW 0.75	0 No (To drain)	03/14/2002 0-12 6	100 0 0	24 365 4.00	50-150 Area 1 Mar 2002	S side GA-807 (092)UTL-1092	BLOCKED 07/14/2002 Automatic
092-01004 03/14/2002	FS3-10 FLOAT TLV	Drip Important Continuous	Outdoor low horizontal	WELD SW 0.50	0 No (To drain)	03/14/2002 0-12 6	110 0 0	24 365 4.00	50-150 Area 1 Mar 2002	Inside GA-809 building (092)UTL-1092	BLOCKED 07/15/2002 Automatic
092-01005 03/14/2002	FS3-10 FLOAT TLV	Unspecified Important Continuous	Outdoor low horizontal	WELD SW 0.75	0 No (To drain)	03/14/2002 0-12 6	110 0 0	24 365 4.00	50-150 Area 1 Mar 2002	At P-111A discharge (092)UTL-1092	GOOD 07/15/2002 Automatic
092-01006 03/01/2000	721 DISC YARWAY	Unspecified Important Continuous	Outdoor low horizontal	SCREW NPT 0.75	0 No (To drain)	03/01/2000 24-36 6	110 0 0	24 365 4.00	50-150 Area 1 Unspecified	At P-111A discharge (092)UTL-1092	BLOCKED 07/15/2002 Automatic
092-01007 03/01/2000	1011 BUCKET ARMSTRONG	Tracer Important Continuous	Outdoor low vertical	SCREW NPT 0.50	0 Yes	03/01/2000 24-36 6	110 9 0	24 365 4.00	50-150 Area 1 Unspecified	N side Amoco meter bldg (092)UTL-1092	GOOD 07/15/2002 Automatic
092-01008 08/04/2000	FS3-10 FLOAT TLV	Tracer Important Continuous	Outdoor low vertical	SCREW NPT 0.50	0 Yes	08/04/2000 12-24 6	110 9 0	24 365 4.00	50-150 Area 1 Unspecified	N side Amoco meter bldg (092)UTL-1092	LOW TEMP. 07/15/2002 Automatic
092-01009 06/26/2000	FS3-10 FLOAT TLV	Tracer Important Continuous	Outdoor low vertical	SCREW NPT 0.50	0 Yes	06/26/2000 24-36 6	110 9 0	24 365 4.00	50-150 Area 1 Unspecified	N side Amoco meter bldg (092)UTL-1092	LOW TEMP. 07/15/2002 Automatic
092-01010 03/14/2002	FS3-10 FLOAT TLV	Tracer Important Continuous	Outdoor low vertical	WELD SW 0.50	0 Yes	03/14/2002 0-12 6	110 9 0	24 365 4.00	50-150 Area 1 Mar 2002	N side Amoco meter bldg (092)UTL-1092	GOOD 07/15/2002 Automatic
092-01011 03/14/2002	FS3-10 FLOAT TLV	Tracer Important Continuous	Outdoor low vertical	WELD SW 0.50	0 Yes	03/14/2002 0-12 6	110 9 0	24 365 4.00	50-150 Area 1 Mar 2002	N side Amoco meter bldg (092)UTL-1092	GOOD 07/15/2002 Automatic

Pressure: psi
Temperature: F
Pipe Size: inch

Currency: $
Steam Cost: $/1,000lbs
Inspection Frequency: Month(s)

Condensate Rate: lb/hr
Steam Loss: 1,000 lb / Year
Dollar Loss: $/ Year

Documented Savings

- Program was implemented in 1998 and has identified poorly performing traps, equipment problems and leaks in the steam system.
- In 3 years, $3 million in net costs have been saved.

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